## U.S. Army Center for Health Promotion and Preventive Medicine



DRAFT INDUSTRIAL RADIATION HISTORICAL DATA REVIEW NO. 27-MH-4937-H-96 FORT TOTTEN, BAYSIDE, NEW YORK 16-18 SEPTEMBER 1996

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#### U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE

The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) lineage can be traced back over a half century to the Army Industrial Hygiene Laboratory which was established at the beginning of World War II under the direct jurisdiction of The Army Surgeon General. It was originally located at the Johns Hopkins School of Hygiene and Public Health with a staff of three and an annual budget not to exceed three thousand dollars. Its mission was to conduct occupational health surveys of Army-operated industrial plants, arsenals, and depots. These surveys were aimed at identifying and eliminating occupational health hazards within the Department of Defense's (DOD) industrial production base and proved to be extremely beneficial to the Nation's war effort.

Most recently, the organization has been nationally and internationally known as the U.S. Army Environmental Hygiene Agency (AEHA) and is located on the Edgewood area of Aberdeen Proving Ground, Maryland. Its mission had been expanded to support the worldwide preventive medicine programs of the Army, DOD and other Federal agencies through consultations, supportive services, investigations and training.

On 1 August 1994, the organization was officially redesignated the U.S. Army Center for Health Promotion and Preventive Medicine and is affectionately referred to as the CHPPM. As always, our mission focus is centered upon the Army Imperatives to that we are optimizing soldier effectiveness by minimizing health risk. The CHPPM's mission is to provide worldwide scientific expertise and services in the areas of:

- Clinical and field preventive medicine
- Environmental and occupational health
- Health promotion and wellness
- Epidemiology and disease surveillance
- Related laboratory services

The Center's quest has always been one of customer satisfaction, technical excellence and continuous quality improvement. Our vision is to be a world-class center of excellence for enhancing military readiness by integrating health promotion and preventive medicine into America's Army. To achieve that end, CHPPM holds everfast to its core values which are steeped in our rich heritage:

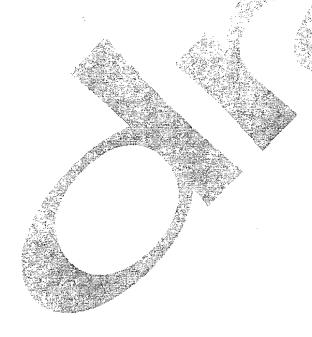
- Integrity is our foundation
- Excellence is our standard
- Customer satisfaction is our focus
- Our people are our most valuable resource
- Continuous quality improvement is our pathway

Once again, the organization stands on the threshold of even greater challenges and responsibilities. The CHPPM structure has been reengineered to include General Officer leadership in order to support the Army of the future. The professional disciplines represented at the Center have been expanded to include a wide array of medical, scientific, engineering, and administrative support personnel.

As the CHPPM moves into the next century, we are an organization fiercely proud of our history, yet equally excited about the future. The Center is destined to continue its development as a world-class organization with expanded preventive health care services provided to the Army, DOD, other Federal agencies, the Nation, and the world community.

EXECUTIVE SUMMARY
INDUSTRIAL RADIATION HISTORICAL
DATA REVIEW NO. 27-MH-4937-H-96
FORT TOTTEN, BAYSIDE, NEW YORK
16-18 SEPTEMBER 1996

- I. PURPOSE. The purpose of this Draft Historical Data Review was to establish the history of use and storage of radioactive sources/commodities at Fort Totten, Bayside, New York.
- II. CONCLUSIONS. The historical data/record search and interviews (telephonically and in person) with key persons revealed that there were no incidents of radioactive materials usage or storage at Fort Totten.
- III. RECOMMENDATIONS. That the findings of the Historical Site Assessment be made known to the Base Realignment and Closure (BRAC) Environmental Coordinator, and the Fort Totten Restoration Advisory Board.



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# INDUSTRIAL RADIATION HISTORICAL DATA REVIEW NO. 27-MH-4937-H-96 FORT TOTTEN, BAYSIDE, NEW YORK 16-18 SEPTEMBER 1996

- I. Reference NUREG/CR-5849, Manual for Conducting Radiological Surveys in Support of License Termination, Draft Report for Comment, June 1992.
- II. AUTHORITY. Facsimile, FORSCOM, AFPI-BC, 25 January 1996, subject: FORSCOM Priorities for NRC and UXO BRAC 95 Projects.
- III. PURPOSE. The Historical Data Review is a preliminary survey to establish the history of the uses of radioactive materials at Fort Totten. The locations of radioactive material usage, the radioisotopes used, any accidents/incidents or radioactive material leaks that may have resulted in potential radiological contamination in any area, and general history of all units involved in radiological activities at Fort Totten. This Historical Data Review pertains to all properties currently designated as Fort Totten property.

#### IV. GENERAL.

- A. Mr. Scott Kaeppel, Henry M. Jackson Foundation Participant, U.S. Army Center for Promotion and Preventive Medicine (USACHPPM), Industrial Health Physics Program, conducted a "Kickoff" meeting with Mr. Peter Koutroubis, Base Realignment and Closure (BRAC) Environmental Coordinator to discuss the schedule, scope of work and deliverables from USACHPPM to in support of their BRAC activities.
- B. Mr. Gordon Lodde, LTC, AUS, RET, was contracted under Contract No. DAAD05-96-P-1106 to provide USACHPPM with a

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Historical Site Assessment. This Historical Site Assessment included interviews, historical records search and review, and an assessment of the potential for residual contamination (see Appendix B).

- C. A history of the uses of radioactive materials in facilities and properties at Fort Totten, findings and recommendations for the preliminary assessment of the areas of use of materials, are included in the enclosed report.
- D. Appendix A contains a list of abbreviations used in this report.
- E. The following individuals provided outstanding support for this Historical Data Review:
- 1. Mr. Peter Koutroubis, BRAC Environmental Coordinator, Fort Totten.
- 2. Mr. Gordon Lodde, Contracted Health Physicist, Author of <u>Industrial Radiation Historical Site Assessment</u>, Fort Totten.
  - F. Historical Site Assessment.
- 1. The first step in the assessment process was a historical document and data review. This aided in identifying facilities or areas that may have been involved in the use or storage of radioactive commodities, devices that contain radioactive material, and other sources of radioactive material.
- 2. The objectives of the Historical Site Assessment were to:
- a. Identify known, likely or potential sources of radioactive material and radioactive contamination based on available information to support the initial classification of areas.

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- b. Provide information useful in the development of the scoping survey and characterization survey plans.
  - c. Document and review the following:
- (1) All applicable Nuclear Regulatory Commission licenses, Department of the Army radioactive material authorizations/permits and supporting documents which could identify the radioisotopes, quantities, activities, chemical and physical form of the radioactive material authorized for possession, operations, locations and total quantities/activity used at the site during its operating lifetime.
- (2) All radiation survey results; leak test results; acquisition, inventory, transfer and disposal records; minutes of the Radiation Control Committee; inspection and audit reports which could provide a status of the Radiation Control Program at the site.
- (3) Operating records which could provide information on demolition, landfilling, spills, fires, pipe or tank leaks, accidents/incidents that may have resulted in the release or spread of radioactive contamination.
- (4) Information concerning past site activities beyond expected locations old drawings, maps, photographs, and local newspaper articles.
- (5) Interview the site/installation Radiation Protection Officer, Safety Officer, Public Affairs, environmental and property disposal personnel, current and former employees that worked at the site.
  - d. Initial classification of areas:
- (1) Based on a review of readily available information and a walk-through of the areas/facilities, an initial

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classification of areas/facilities were made on the potential for radioactive contamination under Contract No. DAAD05-96-P-1106

B. A Decommissioning Plan is not required for Fort Totten because the criteria stated in Title 10, Code of Federal Regulations (10 CFR), Part 30, are not applicable.

#### VI. RECOMMENDATIONS.

A. That all federal, state, and local regulators interested in the disposition of Fort Totten are informed of the status of Fort Totten, as not needing radiation surveys due to findings of the Historical Data Review supporting no indicated radioactive material storage/usage.

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### INDUSTRIAL RADIATION HISTORICAL SITE ASSESSMENT FORT TOTTEN BAYSIDE, LONG ISLAND, NEW YORK

#### PREPARED FOR:

INDUSTRIAL HEALTH PHYSICS PROGRAM

U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE

UNDER CONTRACT NO. DAAD05-96-P-1106

PREPARED BY:

GORDON M. LODDE LTC, AUS, RET HEALTH PHYSICS CONSULTANT

# EXECUTIVE SUMMARY INDUSTRIAL RADIATION HISTORICAL SITE ASSESSMENT FORT TOTTEN BAYSIDE, LONG ISLAND, NEW YORK 16-18 SEPTEMBER 1996

1. PURPOSE. The purchase of this Historical Site Assessment was to establish the history of the handling of radioactive sources/items at Fort Totten, New York. The location of radioactive sources/items; the radionuclide in the sources/items; how they were utilized; accidents/incidents or leaks of radioactive material that may have contaminated any area(s), and the history of radiological activities at Fort Totten were reviewed to determine which areas/rooms should be evaluated for the presence of any residual radioactive material.

#### 2. CONCLUSIONS.

- a. This Historical Site Assessment which included interviews and record searches did not indicate any use, storage or burial of radioactive items, other than medical, dental x-rays, and radioactive material which are currently under the control of the 77th Army Reserve Command at the Ernie Pyle U.S. Army Reserve Center, Fort Totten.
- b. All buildings/areas which are included in the Base Realignment and Closure Program are classified as non-impacted.
- c. The following buildings identified on the 14 August 1987, General Fort Totten Site Map have been destroyed, Buildings 109, 110, 111, 119, 202, 204 and 600.

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# INDUSTRIAL RADIATION HISTORICAL SITE ASSESSMENT FORT TOTTEN BAYSIDE, LONG ISLAND, NEW YORK 16-18 SEPTEMBER 1996

#### 1. REFERENCES.

- a. NUREG/CR-5849, Manual for Conducting Radiological Surveys in Support of License Termination, Draft Report for Comment, June 1992.
- b. NUREG-1505, a Nonparametric Statistical Methodology for the Design and Analysis of Final Status Decommissioning Surveys, Draft Report for Comment, August 1995.
- c. U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) Industrial Survey Protocol.
- 2. AUTHORITY. Contract No. DAAD05-96-P-1106.
- 3. PURPOSE. The purpose of this Historical Site Assessment was to establish the history of the handling of radioactive sources/items at Fort Totten, New York. The location of radioactive sources/items; the radionuclide in the radioactive sources/items; how they were utilized; accidents/incidents or leaks of radioactive material that may have contaminated any area(s), and general history of radiological activities at Fort Totten, were reviewed to determine which areas/rooms should be evaluated for the presence of any residual radioactive material.

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#### 4. GENERAL.

- a. Mr. Harris Edge, U.S. Army Center for Health Promotion and Preventive Medicine, Industrial Health Physics Program Manager, contacted the Fort Totten Base Realignment and Closure (BRAC) Environmental Coordinator, and started a search of USACHPPM's files to obtain information to aid in identifying the area(s)/room(s) requiring radiation surveys.
- b. Mr. Gordon M. Lodde, Health Physics Contractor, conducted an Historical Site Assessment of the USACHPPM and activity radiation survey/leak test records; maps, records of accidents/incidents, leaks, spills and contamination events; and various other documents were reviewed and evaluated.
  - c. A list of abbreviations is provided in Appendix A.
- d. Interviews were conducted with current and former employees at Fort Totten and Fort Hamilton. An outline of typical questions asked, personnel interviewed and the results of interviews are provided in Appendices B and C, respectively.

#### 5. FINDINGS.

#### a. <u>History of Fort Totten</u>.

(1) As early as the 1820s, the need for a fort, at the current Fort Totten site, was realized due to its strategic location on Long Island Sound. However, it was not until 16 May 1857, that the U.S. Government purchased 111 acres at Willet's Point. On 1 May 1861, Willet's Point became Camp Morgan. The original design, along with its sister site, Fort

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Schuyler, at Throggs Neck across Long Island Sound, was to guard the entrance to the New York Harbor during the Civil War. Actual construction did not begin until 1862, part of the area not under construction was used as a depot for recruits, and a camping ground for volunteer units enroute to Civil War combat areas. In May of 1863 another 25 acres was purchased from Henry Day and his wife.

- (2) When the Civil War ended and the units were deactivated, troops were stationed on the Post at Willet's Point (former name of Fort Totten). For the first year following the Civil War, the mission of the Post at Willet's Point was receiving and warehousing of engineer stores, equipment, and material coming from the battlefront. The Post was officially named Fort Totten in 1898 in honor of BG Joseph G. Totten, Chief of Engineers, who was killed during the Civil War in 1864.
- (3) Since Fort Totten was established in 1857, it has served a vital and varied roll in the military history of the United States. Some of the mission responsibilities conducted at Fort Totten include:
  - (a) Harbor and costal defense.
  - (b) Torpedo and Mine School.
  - (c) Submarine Defense School.
  - (d) Job Corps Training Center.
  - (e) School of Engineering Applications.

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- (f) Engineer Depot.
- (g) Torpedo Depot.
- (h) Military Training Camp.
- (i) Army Air Transport Command.
- (j) Fort Totten Army Medical Center/Fort Totten General Hospital.
  - (k) Army Medical Equipment and Development Laboratory.
  - (1) Air Defense (Anti-Aircraft Artillery and Missiles).
- (4) The U.S. Army Medical Equipment Research and Development Laboratory was responsible for conducting engineering research and development of new medical and dental equipment for the Army, Navy and Air Force. The vast array of equipment included medical and dental instruments, field x-ray equipment, veterinary and optical materials, and pest control systems were developed at Fort Totten.
- (5) There is no record of NIKE/AJAX or NIKE/HERCULES Missile Systems being located or repaired at Fort Totten.
- (6) Fort Totten was placed on the Army's inactive status and designated a sub-installation of Fort Hamilton in 1967. In 1995, the Defense Secretary's Commission of BRAC, recommended closure of Fort Totten.

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- (7) Fort Totten will continue to serve as the Headquarters for the 77th Army Reserve Command; U.S. Coast Guard; Bayside Historical Society; Eastern Paralyzed Veterans Association; New York Police Department; New York City Fire Marshal, and Emergency Medical Service.
- b. Several previous contractor assessments, surveys and investigations have been conducted at Fort Totten. The following list identifies previous assessments that were reviewed in connection with the record review.
- (1) Environmental Science and Engineering, Inc., Installation Assessment of New York Area Command and Fort Hamilton, Brooklyn, NY, and its sub-installations: Fort Wadsworth, Staten Island, NY, and Fort Totten, Flushing, NY, Report No. 336, February 1984.
- (2) Woodward-Clyde Federal Services; Environmental Baseline Survey Draft Report, March 1996.

#### c. Radioactive Sources/Items.

(1) A radioactive source is a sealed source which meets the requirements established in Title 10, Code of Federal Regulations (10 CFR), Part 32. A radioactive item as defined by the Army Regulation (AR) 700-64, is an item of Government property composed in whole or in part of radioactive materials and to which a National Stock Number (NSN) or part number has been assigned. A radioactive item is any item in the Department of Defense (DOD) Supply System that contains radioactivity equal to or more than the quantities listed in 10 CFR, Part 20,

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Appendix C, or contains a specific activity greater than 0.002 microcuries ( $\mu$ Ci) per gram of radioactive materials specified in 49 CFR, Part 173.403(y). These quantities were established so that control procedures could be published and implemented for the receipt, storage, use, maintenance, transportation and disposal of radioactive sources/items in the DOD Supply System. The Army has defined a radioactive device (AR 700-64) as a manufactured article, such as instruments, clocks, electron tubes, self-illuminous exit signs, apparatus or similar devices having radioactive materials (other than liquids) in a non-dispensable form as a component part.

- (2) An example or some radioactive items used and stored at Army installations are identified on Page 7. The Army Technical Bulletin 43-0116 contains a listing of radioactive items that may be used and stored at Army installations.
- (3) Often radioactive items were designed and developed specifically for military use and to accomplish specific assigned missions. As such, most radioactive items were subjected to use and environmental test factors during their development to establish and prove the military usefulness and safety of the items.
- (4) The following is a listing, which may not be complete, of radioactive items at Fort Totten:

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NOMENCLATURE	RADIONUCLIDE	LICENSEE
Compasses	Ra-226/H-3	TROSCOM/ACALA
Wrist Watches	Ra-226/H-3	TROSCOM/ACALA
MX-7338, RADIAC Check Source	K4-85	CECOM
Dials/Meters/Switches	Ra-226	NA .

- (5) A museum located in Building 502, contained a historical items from Fort Totten. Discussion with Mr. Jack Fein, Volunteer Installation Historian and Museum Curator, indicated that to the best of his knowledge, he did not have any items that contained radioactive material.
- (6) Other than for radioactive items at the 77th Army Reserve Command, Headquarters, the records search did not indicate the use, storage of burial of radioactive items; however, the 344th General Hospital, Ernie Pyle USARC, has medical and dental x-ray systems.
- d. Radon. Evaluation of radon in buildings located on Fort Totten BRAC property has been completed. Results of the radon tests indicate that all BRAC property buildings tested have radon values well below the Environmental Protection Agency mitigation level of 4 picocuries per liter.

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e. Maps, Area Classification and Identifications of Buildings/Rooms/Areas. Appendix D is a map showing the location of structures at Fort Totten; Appendix E defines the area classification and Appendix F provides the identification of buildings and rooms or areas where radioactive materials were used and stored, and classification of the area based on the potential for residual radioactive contamination.

#### 6. CONCLUSIONS.

- a. This Historical Site Assessment which included interviews and record searches did not indicate any use, storage or burial of radioactive items, other than medical, dental x-rays, and radioactive material which are currently under the control of the 77th U.S. Army Reserve Command at the Ernie Pyle U.S. Army Reserve Center at Fort Totten.
- b. All buildings/areas which are included in the Base Realignment and Closure Program are classified as non-impacted.
- c. The following buildings identified on 14 August 1987, General Fort Totten Site Map have been destroyed, Buildings 109, 110, 111, 119, 202, 204 and 600.
- 7. RECOMMENDATION. Baased on past activities at Fort Totten, there is no requirement to conduct radiological surveys and all buildings/areas identified as BRAC can be released for unrestricted use.

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APPENDIX A

ABBREVIATIONS

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#### **ABBREVIATIONS**

ACALA U.S. Army Armament and Chemical Acquisition

and Logistics Activity

AR Army Regulation

BRAC Base Realignment and Closure

CECOM Communications-Electronics Command

CFR Code of Federal Regulations

DOD Department of Defense
NSN National Stock Number:

TROSCOM Troop Support Command

USACHPPM U.S. Army Center for Health Promotion and

Preventive Medicine

 $\mu$ Ci microcuries

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#### APPENDIX B

TYPICAL QUESTIONS ASKED

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#### TYPICAL QUESTIONS ASKED

- (A) What was/is your connection with radioactive material use?
- (B) Where did you use the radioactive commodities?
- (C) Were you provided personnel monitoring dosimeters, medical examinations, personnel protection equipment, or a RADIAC survey meter?
- (D) Were you provided radiation protection training; how involved was the training? Who provided the training? Was there documentation of training?
- (E) What type or kind of radiation protection procedures were provided to you and your fellow workers?
- (F) Did your supervisors participate in the training? In what way?
- (G) Did your SOP address disposal of radioactive commodities?

  Where were the commodities disposed of? Was it ever buried onsite or transferred to a landfill as normal trash?
- (H) Can you name or identify the radioactive commodities you work with?
- (I) Did any of the radioactive commodities have radium-226, cesium-137 or cobalt-60? How did you handle commodities that contained radium-226?

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- (J) Describe a typical day involving radioactive commodities in your work area?
- (K) Describe what would happen if a radioactive commodity was damaged or broken. Who would you tell? What special procedures would have been implemented?
- (L) What was your job position and title?
- (M) Do you recall any instance of a broken or leaking source or any other contamination incident or accident?

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#### APPENDIX C

SUMMARY OF INTERVIEWS

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NAME	ORGANIZATION	RESPONSIBILITIES	REMARKS/COMMENTS
Jack Fein	JOL	Installation Historian and Museum Curator	Building 502 is the Museum located in a National Historical Site area of Fort Totten
Peter Koutrobis	DPW	BRAC Environmental Coordination	Provided information on previous assessments, studies and maps of Fort Totten
Valerie McGhee	DPW	BRAC Administrative Assistant	Provided copies of the BRAC Advisory Committee Minutes
Cary Ross	77th Army Reserve Command	Environmental Engineer	Provided information related to the 77th Army Reserve Command Environmental Program
Steve Sawyer	77th Army Reserve Command	Safety Officer	Provided environment related to the 77th Army Reserve Command Safety Program

APPENDIX D

LOCATION AND SITE MAPS

FORT TOTTEN

#### APPENDIX E

CLASSIFICATION OF AREAS

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#### CLASSIFICATION OF AREAS

- 1. Based on a review of readily available information, an initial classification of areas/facilities were made on the potential for radioactive contamination.
  - a. The classification of areas are:
- (1) Affected Areas: Area(s) that have the potential for radioactive contamination (based on facility operating history) or known radioactive contamination (based on past or preliminary radiological survey/surveillance). This would normally include areas where radioactive materials were used and stored, where records indicate spills or other unusual occurrences that could have resulted in the spread of radioactive contamination, and where radioactive materials were buried. Areas immediately surrounding or adjacent to locations where radioactive materials were used or stored, spilled, or buried are included in this classification because of the potential for the inadvertent spread of radioactive contamination. Affected areas are further divided into those areas that are considered to have a potential for containing small areas of elevated residual radioactivity

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(hot spots) in excess of the regulatory guideline levels and those in which such areas of elevated radioactivity would not be anticipated. (If there is any doubt, the area should be designated as an affected area.)

- (a) Affected/Non-Uniform Area. An area that has the potential for non-uniform or spotty residual radioactivity pattern. Indoor survey units that are classified as affected/non-uniform will generally consist of a single room.

  NOTE: Any area that has been remediated or decontaminated shall be designated as affected/non-uniform. In general, all areas shall be treated as affected/non-uniform until substantial bases are provided to reclassify them to either affected/uniform, unaffected, or non-impacted area.
- (b) <u>Affected/Uniform Area</u>: An area with little or no potential for non-uniform or spotty residual radioactivity.
- (2) <u>Unaffected Area</u>: Any area that is not expected to contain any residual radioactivity, based on a knowledge of site

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history and previous radiological survey information. The unaffected areas of a facility may consist of a single survey unit of unlimited size.

- (3) <u>Non-Impacted Area</u>: Any area that has no potential for residual radioactive contamination.
- 2. Guidelines for determining the classification of areas:
- a. Areas where historical information indicates the following will be classified as affected/non-uniform:
- (1) Commodity repair or maintenance, cannibalization, demilitarization, and onsite burial of commodities.
- (2) Unit arms and NBC rooms, training areas, receiving, central issue, maintenance areas, TMDE; museum; landfills; demolition areas.
- (3) Areas where radioactive materials were processed, where radioactive wastes were handled, stored, or disposed of; where spills, fires or other incidents occurred which may have

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- (4) Medical facilities which conducted nuclear medicine studies and used unsealed radioactive materials for clinical investigation and medical research and sealed sources for radiation therapy.
- (5) Nonmedical RDT&E activities using radioactive materials in specified physical and chemical forms, present challenging problems. Unique experiments were often performed and the documentation and record-keeping in the past have not been as detailed as current regulations require.
- (b) Areas that have a low probability (< 5%) of radioactive contamination (e.g., areas that stored operational or functional commodities, and areas where there are good records of leak tests, smear/wipe tests or other radiological surveys are available and support the conclusion that radioactive contamination is unlikely) will be surveyed as unaffected areas.
- (c) Areas that have no potential for residual radioactive contamination (e.g., family housing, post exchange,

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chapel, library, commissary, gym) which are not direct mission areas are classified as non-impacted areas and no radiological surveys are required prior to releasing the area for unrestricted use.

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